

REMARKS

Reconsideration is requested.

The Examiner interview of December 1, 2005 is acknowledged, with appreciation. The Examiner interview is accurate in its brief statement of the issues discussed.

Claims 25, 27, 29, 31, 35, 37, 39, 41, 45, 47, 49, 53, 55 and 57 will be pending upon the entry of the present Amendment. Claims 1-24, 26, 28, 30, 32-34, 36, 38, 40, 42-44, 46, 48, 50-52, 54 and-56 have been canceled, without prejudice. The claims have been amended to advance prosecution, without prejudice.

The Section 112, first paragraph, rejection of claims 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54 and 56 stated in the 3rd paragraph of the Office Action dated September 23, 2005, will be moot upon entry of the present Amendment. Entry of the present Amendment is requested therefore to, at a minimum, reduce the issues for appeal.

The Section 112, first paragraph "enablement", rejection of claims 24-57 stated on pages 2-4 of the Office Action dated September 23, 2005, is traversed.

Reconsideration and withdrawal of the rejection are requested in view of the following further comments.

A similar rejection, although within the context of Section 112, first and second paragraph rejections, has been made by the present Examiner in the applicants copending application Serial No. 08/362,455. The applicants submitted the following analysis in response to the rejection in the copending application, which is repeated here for completeness.

The applicants submit that one of ordinary skill in the art would be able to make and use the claimed invention without undue experimentation.

Upon entry of the present Amendment, the claims will not require hybridization, as suggested by the Examiner as a basis for the rejection. The present claims relate, in part, to HCV polynucleic acids consisting of at least 8 contiguous nucleotides of specifically recited sequences. The claim structure and recitation of at least 8 contiguous nucleotides is, in many respects, the same as the claims of U.S. Patent No. 6,762,024, which the present Examiner found enabled by the contents of the present specification.

As discussed with the Examiners during the interview, the claims further require the presence of at least one genotype-specific nucleotide. The specification, including the Figures, describe genotype-specific nucleotides required by the claims.

The identification of the genotype-specific nucleotides of the claims will be demonstrated further below by analyzing the polynucleic acid sequences of the disclosure. The Core/E1 region was chosen in the following analysis as the more difficult example to perform a detailed analysis of how to determine genotype-specific nucleotides in the nucleotide sequences as claimed. A similar analysis could be done for the Core region of HCV subtype 3c, as in the present application. However, the applicants believe that the analysis performed in the co-pending application and represented below should be sufficient to convince the Examiner in the present application that the claims are supported by an enabling disclosure which adequately describes the claimed invention.

On page 3 of the Office Action September 23, 2005, the Examiner refers to references of Kennell (1971) and Wallace (1987) as a basis for asserting that the specification allegedly fails to enable the claims. A similar rejection was advanced by the present Examiner in the related application which issued as U.S. Patent No. 6,762,024.

As noted to the Examiner prior to issuance of the related U.S. Patent No. 6,762,024, the fragment of Wallace et al. quoted by the Examiner does not exclude the possibility that probes shorter than 14 bases can be found suitable for specific hybridization, see, the wording "tendency" and "probably" in said fragment. Wallace et al. further specify that the specificity of a probe should first be determined (lines 7-8 on page 434).

In support, the applicants submit the attached two examples of successful use of probes or primers shorter than 14 nucleotides. Specifically, Majzoub et al. (1983, PNAS 258, 14061-14064; of record) successfully utilized 8-mer primers, and Chan et al. (1979, PNAS 76, 5036-504; of record) successfully utilized 10-mer probes.

Moreover, as discussed with the Examiners during the interview, genotype specific differences e.g. between HCV subtype 1a and 1b, can be detected based on probes with a difference of only 1 nucleotide. The specification, including the Figures, describe genotype-specific nucleotides required by the claims.

As also explained by the inventor during the interview with the Examiners, the definition of genotypes and subtypes of the claims are well understood from the present specification (more specifically, see pages 8 to 10) and generally advanced level of skill in the art (more specifically, see summary of the art in Table 3 on page 11 of the specification).

The requirement for a genotype-specific nucleotide, not only distinguishes the claims over the art but may also provide distinctions in identification, treatment and disease outcome, for example, as discussed with the Examiners during the interview. For Example, determination of HCV genotype is currently mandated by the FDA prior to determination of the duration of interferon/ribavirin treatment.

The following examples of genotype/subtype specific nucleotides in Core/E1 region are further provided from the specification, by way of example.

The specification describes genotype-specific amino acids in the new HCV amino acid sequences of the invention, see penultimate paragraph on page 4. The specification further teaches that, at the nucleotide level, additional genotype-specific residues are discerned due to the fact that not all differences in nucleotide sequence are translated into differences in amino acid sequence, as will be expected by one of ordinary skill in the art. See penultimate paragraph on page 3.

The specification moreover discloses amino acid sequence regions (9 to 14 consecutive amino acids in length) that in fact are specific to an HCV genotype or subtype, see pages 35-38. The ordinarily skilled person will understand from this that genotype-specific nucleotides can be determined in the same manner as genotype-specific amino acids.

At the suggestion of the Examiners during the interview, the applicants also demonstrate in the following analysis that the written description of the present application provides ample basis for the claimed invention which recite at least one genotype-specific nucleotide.

For this analysis, the Examiner is referred to the following reproductions of the Figures of the application. Specifically, the following are a duplicate of pages 26/111 to 49/111 of Figure 4 of the present application with additional sequence information relating to sequences PC-3-4, PC-3-8, PC-2-1, PC-2-6 and PC C/E1 from Figure 9 of the application having been added in hand-written text for the convenience of the Examiner. The following reproductions provide an alignment of the nucleotide sequences of different HCV subtypes (subtype 2d, subtype 3a, type 4, subtype 5a isolates) with known sequences from the corresponding region of type 1 and type 2 and type 3. This region, i.e., the Core/E1 region is, in comparison with other coding sequence regions, relatively well conserved and was therefore elected as the more difficult example to perform an exemplary analysis of the description of genotype-specific nucleotides in the nucleotide sequences of the claims and specification.

Nucleotides at a certain position from a sequence with a given SEQ ID NO (i.e. representing a specific subtype) differing from other nucleotides of known or new subtypes at the same position in the alignment are considered genotype-specific nucleotides. Vertical lines are meant to promote reading of the aligned sequences. The applicants believe that this analysis is described in the specification and can be performed by one of ordinary skill in the art to, for example, delineate a region of at least 8 contiguous nucleotides containing at least one genotype-specific nucleotide, around the genotype-specific nucleotides indicated in the following, and more generally, in all other claimed sequences.

Figure 4			380	390	400	410	420	428	WO 94/25801
SEQ ID NO			379	380	390	400	410	420	
HCV-1	1a		ACGTGCGGCTTCGCGGACCTCATGGGGTACATACCGCTCGTCGGGCGCC						
HCV-EC1	1a								
HCVHCT18	1a								
HCVHCT23	1a								
HCVHCT27	1a								
HCVTH	1a								
HCV-J	1b								
HC-J6	2a								
HC-J8	2b								
NE92	2d	143							
HD10	3a	13, 15, 17							
BR33	3a	23, 25, 27							
BR36	3a	19, 21							
NZL15	3a								
HCV-TR	3b								
GB809_4	4a	189							
GB116	4c	183							
GB215	4c	185							
GB358	4c	119, 187							
GB809_2	4e	122, 169							
CAM600	4e	167							
CAMG22	4f	171							
CAMG27	4f	173							
GB549	4g	120, 175							
GB438	4h	177							
CAR4/1205	4i	179							
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Figure 4 - Continued 1									WO 94/25801
CAR4/901	4f	181							
BE95	5a	153							
BE100	5a	155							
PC-3.4	5a	49							
PC-3.8	5a	51							
PC-4.1	5a	45							
PC-4.6	5a	47							
PC-4E1	5a	53							
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Figure 4 : Continued 2

		400	410	420	430	440	450	460	470	478
HCV-1	1a	429	TC	TTGGAGGGGCTGCCAGGACCTGGGSCATGGCGTCCGGGTTCTCCAG						
HCV2C1	1a		-----	-----	-----	-----	-----	-----	-----	-----
HCVHCT18	1a		-----	-----	-----	-----	-----	-----	-----	-----
HCVHCT23	1a		-----	CG-----	-----	-----	-----	C-----	-----	T-----
HCVHCT27	1a		-----	G-----	-----	-----	-----	-----	-----	-----
HCVTH	1a		-----	G-----	-----	-----	-----	-----	-----	-----
HCV-J	1b		C-A-G-----	-----	A-----	T-----	C-----	A-----	T-----	G-----
HC-J6	2a		C-C-C-----	TC-----	A-----	T-----	C-----	GA-A-C-----	-----	G-----
HC-J8	2b		GG-----	TC-----	A-----	T-----	A-C-T-----	TA-----	C-----	G-----
NE92	2d		AG-----	T-T-TC-----	A-----	T-----	C-----	GA-A-----	-----	-----
HD10	3a		-G-A-----	TC-A-A-----	T-----	-----	-----	GA-CC-T-----	-----	-----
BR33	3a		CG-A-----	TC-A-A-----	T-----	-----	-----	GA-CC-T-G-----	-----	-----
BR36	3a		CG-A-----	TC-A-A-----	T-----	-----	-----	GA-CC-T-----	-----	-----
NZL15	3a		-G-A-----	TC-A-A-----	C-----	-----	-----	GA-CC-T-----	-----	-----
HCV-TR	3b		-G-G-G-----	TC-A-A-----	C-----	T-----	T-GA-----	CA-T-GG-----	-----	-----
GB809_4	4a		CG-----	G-----	TC-----	-----	-----	A-C-G-----	-----	-----
GB116	4c		-G-G-T-----	TC-----	A-----	BA-C-T-----	TA-----	C-G-----	-----	-----
GB215	4c		CG-G-T-----	TC-----	A-----	BA-C-T-----	TA-----	C-G-----	-----	-----
GB358	4c		-G-G-T-----	TC-----	A-----	BA-C-T-----	TA-----	C-G-----	-----	-----
GB809_2	4e		CG-G-T-----	TC-----	A-----	BA-C-T-----	TA-----	C-G-----	-----	-----
CAM600	4e		CG-G-T-----	TC-----	A-----	BA-C-T-----	TA-----	C-G-----	-----	-----
CAM22	4f		-G-----	T-----	TC-----	A-----	T-----	A-C-G-----	-----	-----
CAM27	4f		-G-G-T-----	TC-----	T-----	-----	-----	A-C-G-----	-----	-----
GB549	4g		-G-G-T-----	TC-----	T-----	A-----	T-----	A-CCG-----	-----	-----
GB438	4h		AG-A-----	TC-----	A-----	T-----	A-----	C-G-----	-----	-----
CAR4/1205	4i		CG-G-----	TC-----	AR-T-----	-----	-----	A-C-----	-----	-----

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Figure 4 : Continued 3

CAR4/901	4?	CG-G-T-----	TC-----	A-----	-----	C-----	T-----	TA-----	C-G-----	G-----				
BE95	5a	CG-----	G-----	TC-A-----	T-C-----	A-C-T-----	GA-----	C-T-G-----	-----	-----				
BE100	5a	CG-----	G-----	TC-A-----	T-C-----	A-----	T-----	GA-----	T-G-----	-----				
PC-3-4	5a	CA	G	TC	A	T	C	A	C	T	GA	C	T	G
PC-3-8	5a	CG	G	TC	A	T	C	A	C	T	GA	C	T	G
PC-4-1	5a	CA	G	TC	A	T	C	A	C	T	GA	C	T	G
PC-4-6	5a	CA	G	TC	A	T	C	A	C	T	GA	C	T	G
PC-CIE1	5a	CR	G	TC	A	T	C	A	C	T	GA	C	T	G

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Figure 4 : Continued 4

		479	480	500	510	520	528
HCV-1	1a	ACGGCGTGAACATATGCAACAGGGAACCTTCCTGGTTGCTCTTCTCTATC					
HCV-EC1	1a	-----					
HCVHCT18	1a	-----					
HCVHCT23	1a	-----C--T-----					
HCVHCT27	1a	-----					
HCVTH	1a	-----C-----					
HCV-J	1b	-----T--G--C-----					
HC-J6	2a	---G--T--T--T-----T--A--C-----C--T-----					
HC-J8	2b	---GA--A--T--C-----TT--A--C-----T-----					
NE92	2d	---GA--A-----T--G--C-----C--T-----					
HD10	3a	---GA--A--T--TC-----TT--G--C-----C--T-----					
BR13	3a	---GA--A-----TC-----TT--G--C-----T-----					
BR36	3a	---GA--A--T--TC-----TT--G--C-----C--T-----T					
NZL15	3a	---GA--A--T--TC-----T--G--C-----C--T-----					
HCV-TR	3b	---A-----T-----C--T-----T-----					
GB809_4	4a	---GA--T-----G-----T-----C-----					
GB116	4c	---TA--T--T-----T--C--C-----T-----					
GB215	4c	---A--C--T-----T--C--C-----					
GB358	4c	---GA--C--T-----G-----T-----C-----					
GB809_2	4e	---GA--C-----C-----T--C--C-----C--T-----					
CAM600	4e	---GA--C--T-----C-----C-----C--T-----					
CAMG22	4f	---GA--T-----C-----C--T-----					
CAMG27	4f	---GA--A-----T-----T-----					
GB549	4g	---GA--T-----T-----C-----C--T-----					
GB438	4h	---GA--C--T--C-----C--C-----C--T-----					

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Figure 4 - Continued 5

CAR4/1205	41	---GA--C--T-----T-----			
CAR4/901	47	---GA--T-----C-----T-----			
BE95	5a	---G--A-----C-----TT--A--C-----			
BE100	5a	---G-----T-----T--G-----			
PL-3-1	5a	G		TT A C	
PL-3-2	5a	G	C	TT A C	
PL-4-1	5a	G		TT A C	
PL-4-6	5a	G		TT A C	
PL-4-6	5a	G	S	TT A C	

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Figure 4 : Continued 6

		529	530	531	532	533	534	535	536	537	538
HCV-1	1a	TTCTTCTGCTGCTCTCTGCTTGACGCTGCCCCGCTTCCGCTACCA									
HCV-1	1a	---	T	---	---	---	---	---	---	---	---
HCVHCT18	1a	---	---	---	C	---	---	---	A	C	---
HCVHCT23	1a	---	---	A	---	C	---	---	---	---	---
HCVHCT27	1a	---	T	---	---	C	---	---	A	---	---
HCVTH	1a	---	---	---	TC	---	---	---	---	---	---
HCV-J	1b	---	CT-A	TT	G	---	T	---	CA-C	A	---
		---	---	---	---	---	---	---	---	---	---
HC-J6	2a	---	T-G	---	G	C	---	A-C	CACC	G-TC	C-TGC-G
HC-J8	2b	---	T-G	T	T	G	A	---	G-C	A	---
S83	2c	---	---	---	---	---	---	---	---	---	---
NE92	2d	---	T-AT	---	---	A	---	TA-C	---	G-TC	C-G-TG
		---	---	---	---	---	---	---	---	---	---
HD10	3a	---	T	T	T	---	---	A	CCCT	A	---
BR33	3a	---	T	T	T	---	---	A	CCCT	A	---
BR36	3a	---	T	T	T	---	---	A	CCCT	A	---
NZL15	3a	---	T	T	T	---	---	A	CCCT	A	---
HCV-TR	3b	---	C	C	T	CT	C	---	---	---	---

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FIG. 4 (continued)

Figure 4 - Continued 7

		529	530	531	532	533	534	535	536	537	538
GB809_4	4a	---	C	---	A	T	T	G	---	C	A
Z4	4a	---	---	---	---	---	---	---	---	---	---
Z1	4b	---	---	---	---	---	---	---	---	---	---
GB116	4c	---	C	CT	---	A	T	T	G	---	C
GB215	4c	---	A	CT	---	A	T	T	G	---	C
GB358	4c	---	CT	---	A	T	T	G	---	C	---
Z6	4c	---	---	---	---	---	---	---	---	---	---
Z7	4c	---	---	---	---	---	---	---	---	---	---
DK13	4d	---	---	---	---	---	---	---	---	---	---
GB809_2	4e	---	CT	---	A	T	T	G	---	C	C
CAM600	4e	---	CT	---	G	C	---	---	---	---	---
G22	4f	---	---	---	A	T	T	G	---	C	---
G27	4f	---	---	---	A	T	T	G	---	C	---
GB549	4g	---	---	---	A	T	T	G	---	C	---
GB438	4h	---	CT	---	A	T	T	G	---	C	A
CAR4/1205	4i	---	C	---	T	T	T	G	---	C	---
CAR4/901	4j	---	N	---	A	T	T	G	---	C	---
		---	---	---	---	---	---	---	---	---	---
BE95	5a	---	T	T	T	T	---	G	TC	C	T
BE100	5a	---	T	T	T	T	---	G	TC	C	T
SA4	5a	---	---	---	---	---	---	---	---	---	---
PC-3-4	5a	---	T	T	T	T	---	G	TC	C	T
PC-3-8	5a	---	T	T	T	T	---	G	TC	C	T
PC-4-1	5a	---	T	T	T	T	---	G	TC	C	T
PC-4-6	5a	---	T	T	T	T	---	G	TC	C	T
PC-4/E1	5a	---	T	T	T	T	---	G	TC	C	T

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FIG. 4 (continued)

Figure 4 - Continued 8			579	600	610	620	628
HCV-1	1a		AGTGC3CAACTCCACGGGGCTTTACCAAGTCACCAATGATTGCCCTAACT				
HCV-1	1a		-----T-----T-----				
HCVHCT18	1a		-----T-----T-----C-----				
HCVHCT23	1a		-----T-----T-----				
HCVHCT27	1a		-----A-----T-----CA-----T-----T-----				
HCVTH	1a		-----T-----T-----C-----C-----				
HCV-J	1b		G-----GTGT-C-----A-A-----T-----G-C-C-----T-C-----				
HC-J6	2a		-----AAG-----AT-----GTACCGG-----ATG-----G-----C-C-----A-C-----TG				
HC-J8	2b		-----CA-G-----ATT-GTTCTAGC-----T-----C-----T-----T-A-----A				
S83	2c		G-----CAAGG-----A-----GGC-ACTCC-----ATGCCG-----C-----T-C-----				
NE92	2d		G-----CAAG-----A-----GCA-CTC-----ATG-----A-----C-----G-----A				
HD10	3a		GTG-----G-----A-CT-T-C-C-----TGT-C-T-----C-C-----TT-C-----TA				
BR23	3a		GTG-----G-----TA-GT-T-C-C-----TGT-C-T-----C-C-----TT-C-----TA				
BR36	3a		GTG-----G-----TA-GT-T-C-C-----TGT-C-T-----C-C-----TT-C-----TA				
NZL15	3a		GTG-----G-----TA-GT-T-C-C-----GT-C-T-----C-C-----TT-C-----TA				
HCV-TR	3b		GTACACG-----A-GT-T-C-A-----TGTGC-T-----C-C-----T-----TG				
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Figure 4 - Continued 9			579				628
GB809_4	4a		CTAC-----G-----TG-TT-----CA-C-----T-----A-----C-----T-----G-----T-----				
Z4	4a		CTAC-----G-----TG-TT-----CA-C-----T-----A-----C-----T-----G-----T-----				
Z1	4b		CTAC-----G-----TG-TT-----CG-C-----T-----T-----C-----T-----A-----				
GB116	4c		CTAT-----G-----T-----CG-C-----T-----TA-----C-----G-----T-----				
GB215	4c		CTAT-----TG-----T-----CG-C-----C-----C-----G-----				
GB353	4c		CTAT-----TG-----T-----CA-C-----T-----A-----C-----G-----				
Z6	4c		CTAT-----TG-----T-----CG-C-----T-----C-----C-----G-----				
Z7	4c		CTAT-----TG-----T-----CG-C-----T-----A-----C-----C-----G-----				
DK13	4d		CTAT-----AG-----T-----TG-----C-----T-----C-----G-----				
GB809_2	4e		CTAT-----TG-TT-----CG-----T-----A-----C-----C-----G-----TG				
CAM600	4e		CTAT-----TG-TT-----CA-----T-----A-----C-----C-----G-----TG				
G22	4f		TTAT-----A-----A-----T-----CA-C-----C-----C-----				
G27	4f		TTAT-----A-----A-----T-----CA-C-----T-----A-----T-----C-----				
GB549	4g		CTAC-----G-----AT-----T-----CA-----T-----C-----G-----				
GB438	4h		CTAC-----G-----TG-AT-----CA-C-----T-----C-----C-----G-----				
CAR4/1205	4i		CTAT-----TG-TT-----ACGG-----TT-TA-----C-----G-----				
CAR4/901	4j		CTAC-----G-----TGT-T-----CA-C-----C-----G-----T-----				
BE95	5a		CTAC-----A-----TG-----T-----T-----A-----T-----T-----T-----A-----				
BE100	5a		CTAC-----A-----TG-----T-----T-----A-----C-----T-----T-----A-----				
SA4	5a		CTAC-----A-----G-----T-----T-----G-----T-----T-----A-----				
PL-3.4	5a		CTAC A TG T T A T T				
PL-3.8	5a		CTAC A TG T T A T T				
PL-4.1	5a		CTAC A TG T T A T T				
PL-4.6	5a		CTAC A TG T T A T T				
PL-4/E1	5a		CTAC A TG T T A T T				
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Figure 4 - Continued 10

		629	640	650	660	670	678
HCV-1	1a	CGAGTATTTGTGTACGAGGGCGGCCGATGCCATCCTGCACACTCCGGGGTGC					
HCV-EC1	1a	-----	-----	-----	-----	-----	-----
HCVHCT18	1a	-----	A-----	A-----	C-----	-----	-----
HCVHCT23	1a	-----	-----	-----	-----	G-----	-----
HCVHCT27	1a	-----	-----	A-----	CA-----	A-----	-----
HCVTH	1a	-----	-----	-----	T-----	G-----	-----
HCV-J	1b	A-----	T-----	A-----	G-CATG-----	A-----	C-C-----
HC-J6	2a	AT--C--ACC-GGC-ACTCCAG-C--TG--C--GTC-C-----					
HC-J8	2b	AC--C--CACC-GGC-CTCA-T--C--AG-T--C--TCT--T--A--					
SB3	2c	T--C--T--GGC-CTT-AA-GA--AG-G--T--T--T--A--					
NE92	2d	GT--C--C--C--GGC-CTCAGG--TG-T--T--GTC-C-----					
HD10	3a	GC-----	T-----	C-AT-C-TT--T-----	A-C-C--T		
BR33	3a	GT-----	T-----	C-AT-C-TT--T-----	G-G-C-C--T		
BR36	3a	GC-----	T-----	C-AT-C-TT--T-----	A-C-C--T		
NZL15	3a	GC-----	T-----	C-AT--T--T-----	A-C-C--T		
HCV-TR	3b	G--C-----	T-----	C-AA--TG--T-----	TTA--C-A--		

Figure 4 - Continued 11

		629					678
GB809_4	4a	-C--C--A--C--T--AA-T-A-C-CCAT--AT--TTG-----					
Z4	4a	-C--C--A--C--T--A--T-A-C-CA-----A--TTG-----					
Z1	4b	-C--C--A--C--T--A--T-A-C-CA-----A--TTG-A-----					
GB116	4c	-C--C--A--C--T--A--T-A-C-CA-----A--CTC-T-----					
GB215	4c	-C--C--A--C--T--A--T-A-C-CA-----A--CT--A-----					
GB359	4c	-C--C--A--C--T--A--T-A-C-CA-----A--CTC-A-----					
Z6	4c	-C--C--A--C--T--A--T-A-C-CA-----A--CTC-A-----					
Z7	4c	-C--C--A--C--T--A--T-A-C-CA-----A--CTC-A-----					
UK13	4d	-C--C--A--C--T--A--T-A-C-CA-----A--CTC-A-----					
GB809_2	4e	-C--C--A--C--T--A--T-A-C-CA-----A--CTC-A-----					
CAM500	4e	-A--C--A--C--T--A--T-A-C-CA-----A--CTC-A-----					
G22	4f	-T--C--A--C--T--A--T-A-C-CA-----A--CT--A--A--					
G27	4f	-T--C--A--C--T--A--T-A-C-CA-----A--CT--A--A--					
GB549	4g	-T--C--A--C--T--A--T-A-C-CA-----A--CTA-A-----					
GB438	4h	-C--C--A--C--T--A--T-A-C-CA-----A--CTA-C-----					
CAR4/1205	4i	-T--C--A--C--T--A--T-A-C-CA-----A--CT--A-----					
CAR4/901	4j	-C--C--A--C--T--A--T-A-C-CA-----A--TTA-A-----					
BE95	5a	-TTCC--A--C--T--A--T-A-C-CA-----A--G-A--T--T--					
BE100	5a	-TTCC--A--C--T--A--T-A-C-CA-----A--G-A--T--C--					
SA4	5a	-TTCC--A--C--T--A--T-A-C-CA-----A--G-A--T--T--					
PC-3.4	5a	TTCC--A--C--T--A--T-A-C-CA-----A--G-A--T--T--					
PC-3.8	5a	TTCC--A--C--T--A--T-A-C-CA-----A--G-A--T--T--					
PC-4.1	5a	TTCC--A--C--T--A--T-A-C-CA-----A--G-A--T--T--					
PC-4.6	5a	TTCC--A--C--T--A--T-A-C-CA-----A--G-A--T--T--					
PC-C/E1	5a	TTCC--A--C--T--A--T-A-C-CA-----A--G-A--T--T--					

Figure 4 - Continued 12

		679	690	700	710	720	728
HCV-1	1a	GTCCCTTCGTTTTCGAGGGCAACGCTCGAGGTGTTGGGTGGCGATGAC					
HCVHC1	1a	-----AC-----T-----					
HCVHCT18	1a	-----AC-----T-----G-----					
HCVHCT23	1a	-----C---AT---T---A-----G-----					
HCVHCT27	1a	-----C---T-----AA-----C-G-AG-					
HCVTH	1a	-----C---T-----					
HCV-J	1b	--G-C---C-G---A-T---TTT---CC-T-C---A-C-C-					
HC-J6	2a	-----G---ACAA-T---G-TA-A---TC---C---A-AC-G-CT-					
HC-J8	2b	-----A-T-ACAA---TAATGG-A---T-CAT-C---A-ACAAG-A--					
S83	2c	-----T-AG---ACC-C---T---TC-A-----C-G-TG-					
NE92	2d	-----T-ACGAGA-----ATA-CC-C---A-AC-G-TT-					
HD10	3a	--A---T---AG-C-T---TA-A-TGC---C---ACCC-AG---					
BR33	3a	--A---T---C-AG-C---TA-G-T-CA-C---ACCC-AG-A---					
BR36	3a	A-A---T---C-AG-C---TA-A-C-C---C---ACCC-AG---					
NZL15	3a	--A---T---C-AG-C---TA-A-T-C---C---ACCC-AG---					
HCV-TR	3b	--G-C---CACAACC---CAA-ATCA-C---ACAA-G-CT-					

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Figure 4 - Continued 13

		679				728
GB809_4	4a	--A-C---GA-G-CC-G---TG-TC-T-C---AC-C-G-A---				
Z4	4a	--A-C-T---GATGACT---G---A-A---C-T-C---AC-C-G---				
Z1	4b	-----C-T-G---GAC-AG---TA-T-TC-C-C---C-CT---				
GB116	4c	T-A-C---GA-G-TT-G---TCAG-AC-C-C---CC-T---				
GB215	4c	T-A-C-T---GA-G-TT-G---TCAG-AC-T-----CC-CT-				
GB358	4c	T-A-C---GA-G-TT-G---TCAG-AC-C-C---CC-C---				
Z6	4c	T-G-C-T---GA-G-TT-G---TCAG-AC-C-C---CC-T---				
Z7	4c	--A-C-T---GA-G---G---CAG-AC-C-C---CC-T---				
DK13	4d	-----T---GA-G-A-G---AAG-T-CA-C---T-TC-C---				
GB809_2	4e	--A-C-T---GAAGACC-G---CAG---C-----CC-C---				
CAM600	4e	--A-C-T---GA-GACT-G---CAG---C-----CC-C---				
G22	4f	-----T-AA-AACT-G---CAG-TC---C---A-CT---				
G27	4f	-----C-T---GA-AACT-G---CAG-AC-A-C---A-A-CT---				
GB549	4g	--G---T---GA-AACT-G---A---C-C-C---TC-TT-A---				
GB438	4h	--G-C-T---AA-AACT-G-T-T---C-T-C---A-TC-TT-A---				
CAR4/1205	4i	A-A-C-T---GAAGACC-G---TCAG---C---C---TC-C---				
CAR4/901	4j	A-A-C---GA-GACC-G---TT---C-C-C---AT-TC---				
BE95	5a	--G---T---CATGACA-T-T-TGAGT---A-C---CCAA-T---				
BE100	5a	--G---T---CA-GA-A-AT-T-TGAGT---C---CCAA-T---				
SA4	5a	--G---T---CA-GC-A-AT-T-TAGT-A---C---CCAA-C---				
PC-3.4	5a	G T CATGACA T T TGAGT A C CCAA T				
PC-3.8	5a	G T CATGACA T T TGAGT A C CCAA T				
PC-4.1	5a	G T CATGACA T T TGAGT A C CCAA T				
PC-4.6	5a	G T CATGACA T T TGAGT A C CCAA T				
PC-CRE1	5a	G T CATGACA T T TGAGT A C CCAA T				

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Figure 4 - Continued 14

		430	440	450	460	470	978
HCV-1	1a	CCCTACCGGCGCTGACCGGGATGGCAAATCTCCCGCGACGCAGCTTCGAC					
HCV-EC1	1a	---C---		---C---		---A-A---	
HCVHCT18	1a	---C---				---A-A---	
HCVHCT23	1a	---C---		---A---		---A-A---	
HCVHCT27	1a	---C-A---			---C---	---A---	
HCVTH	1a	---C---			---C---	---A-A---	---G---
HCV-J	1b	T---C---C-C---GG---	---A---	---CA---	---GCA---	---A-C---	---ACAA---
HC-J6	2a	A---G-AT---	GTGCA-C	GCC-GGCGC-	T-A-	CA-GGCT-	A--GA
HC-J8	2b	A---C-AC---	TGTG-AAC	CC-GGTGCG-	T-A-	TCGTAGC-	G---A
SR3	2c	---C-ATC-C---	TA-TC	ACCTGGCGCT-	T-A-T-	A-GGC-	G---G
NE92	2d	G---C-ATG-A---	TGTG-CG	ACCTGGTGC-	TTA-C-	A-GGC-	G--GA
RD10	3a	A-----A---	AGT---	T-C-T-GG-GCAA-	A-CG-TTC-	A-A-CA-	
BR33	3a	A-----A---	AGT---	T-C-T-GGGGCAA-	A-CG-TTC-	A-A-CA-	
BR36	3a	A-----A---	AGT-A-T-	C-T-GG-GCAA-	A-CG-TTC-	A-A-CA-	
NZL15	3a	A-----A---	AGT---	T-C-T-GG-GCAA-	TA-TG-TTC-	A-A-CA-	
HCV-TR	3b	AA-G-----	GTT---	ACCTTGGGCG-CA-	A-CG-TC-	A-C---A	

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Figure 4 - Continued 15

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GB809_4	4a	A1-----	TG	GTAT	CATGG-CGCT	GCTCGA-TCCT	C--G-
Z4	4a	G-----A	TGT	CTAC	CCCCGGCGCT	GCTTGA-TC-T	C--G-
Z1	4b	-----C-T	G	CCCC	CC---CGCA	GTTAGA-TCCA	G--CA
GB116	4c	T--C--C	GG	GCTTT	C-TTGGTGCT	GCTAGAATCC	C--GA
GB215	4c	T--C--C	CT	GCTTT	CAT-GGTGCT	A-TTGAATCCT	C--GA
GB358	4c	T--C--C	GG	GCTTT	CAT-GGGCGT	GCTTGAATCC	C--GA
Z6	4c	T--C--C	GGT	GCTTT	AT-GTGCT	GCTTGACTCC	C--GA
Z7	4c	T--C--C	GG	GCTTT	AT-GGTGCA	GCTTGAATCCA	C--GA
DK13	4d	-----C-C	TS	GCAAC	CTG--TGCT	GCTTGA-TCCT	GA---
GB809_2	4e	T--C--A	GG	GCTTT	C-T-TGGTGCT	GCTCCA--CCT	G--G-
CAM600	4e	T--C--A	GG	GCTTT	C-C-GGTGCT	GCTTGA--CCT	G--G-
G22	4f	-----C--C	G	GCCAT	CCTTGGCGCT	ACTCGA-TCCT	G--G-
G27	4f	-----T	G	GCCAC	CATTGGCGCT	ACTTGA-TCCG	G----
GB549	4g	A--C--T	TS	CCCC	TTGGGCGG	GCTCGAATCC	G--G-
GB439	4h	A--C--T	GT	CCCC	CCT-GGGCGT	ACTT-----	A--G-
CAR4/1205	4i	-----C--C	GG	CTAC	CCTACGTGCT	GCTTT--TCCT	A--GG
CAR4/901	4j	A-----T	TS	TCCCT	CCT-GGGGCT	GCTT--TC--	A--G-

BE95	5a	-----AC--C	AG	CC-AG	CCT-GG-GCACT	A--G-T-CT	-----GA
BE100	5a	-----C--C	AG	CC-AG	CTT-GG-GCACT	A--G-T-CC	-----GA
SA4	5a	-----C--T	AG	CC-AG	CT-GG-GCGCT	A--G-T-CT	-----GA

PC-3-4	5a	AC	CC	AG	CCT-GG-GCACT	A--G-T-CT	GA
PC-3-8	5a	AC	CC	AG	CCT-GG-GCACT	A--G-T-CT	GA
PC-4-1	5a	AC	CC	AG	CCT-GG-GCACT	A--G-T-CT	GA
PC-4-6	5a	AC	CC	AG	CCT-GG-GCACT	A--G-T-CT	GA
PC-4-11	5a	AC	CC	AG	CCT-GG-GCACT	A--G-T-CT	GA

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Figure 4 - Continued 14

				⁷²⁹	⁷⁴⁰	⁷⁶⁰	⁷⁸⁰	⁷⁹⁸
HCV-1	1a			CCCTACGGGCGGCAGCAGGATTCGCAC				
HCVect1	1a			- - C - - - - -		C - - - - -	A - A - - - -	
HCVHCT18	1a			- - C - - - - -		- - - - -	A - A - - - -	
HCVHCT23	1a			- - C - - - - -		A - C - - - -	A - A - - - -	
HCVHCT27	1a			- - C - A - - - -		- - - - -	A - - - - -	
HCVTH	1a			- - C - - - - -		- - G - - - -	A - A - - - -	G - - - -
HCV-J	1b			T - C - - C - C - GG - - -		A - CA - - GCA - -	A - C - - ACAA - -	- - - - -
HC-J6	2a			A - G - AT - - - GTGCA - C - GCC - GGCGC - T - A - - CA - GGCT - A - GA				
HC-J8	2b			A - C - AC - - - TGTA - AAC - CC - GGTGCCG - T - A - TCGTACG - G - - A				
S83	2c			- - C - AT - C - - TA - TC - ACCTTGGCGCT - T - A - T - A - GC - G - - G				
NB92	2d			G - C - ATT - A - TGTA - CC - ACCTGGTGCG - TTA - C - A - GGC - G - GA				
HD10	3a			A - - - - A - - AGT - - - T - C - T - GG - GCAP - - A - CG - TTC - A - A - - CA				
BR33	3a			A - - - - A - - AGT - - - T - C - T - GGGGCAP - - A - CG - TT - C - A - A - - CA				
BR36	3a			A - - - - A - - AGT - A - T - C - T - GG - GCAP - - A - CG - TTC - A - A - - CA				
NZL15	3a			A - - - - A - - AGT - - - T - C - T - GG - GCAP - TA - TG - TTC - A - A - - CA				
HCV-TR	3b			AA - G - - - - GTT - - ACCCTTGGCG - GA - - A - CG - TC - A - C - - - A				

Figure 4 - Continued 15

		729		778	
GB809_4	4a	A	-----TG	GTATCATGG-CGCT	GCTCGA-TCCT C-G-
Z4	4a	G	-----A	TGT CCAC	CCCCGGCGCT GCTTGA-TC-T C-G-
Z1	4b		---C-T	G-GCCCT	CC---CGCA GTTAGA-TCGA G-CA
GB116	4c	T	-C-C	GG-GCCTT	C-TTGGTGCT GCTGAATCC C-CA
GB215	4c	T	-C-C	CC-GCCTT	CAT-GGTGCT A-TTGAATCOT C-GA
GB353	4c	T	-C-C	GG-GCCTT	CAT-GGGCGT GCTTGAATCC C-CA
Z6	4c	T	-C-C	GGTGCTT	AT-GGTCTT GCTTGACTCC C-GA
Z7	4c	T	-C-C	GG-GCCTT	AT-GGTGCA GCTTGAATCCA C-GA
DK13	4d		---C-C	TS-GAAC	CTG--TGCT GCTTGA-TCCT GA---
GB809_2	4e	T	-C-A	GG-GCCTT	C-T-GGTGCT GCTCGA-COT G-G-G
CAM600	4e	T	-C-A	GG-GCAT	C-C-GGTGCT GCTTGA-COT G-G-G
G22	4f		---C-C	G-GCCAT	CCTTGGCGCT ACTCGA-TCGA G-G-G
G27	4f		---C-C	G-GCCAC	CATTGGCGCT ACTTGA-TCGA G---
GB549	4g	A	-C-T	TT-GCCT	TTGGCGCG GCTCGAATCA G-G-G
GB439	4h	A	-C-T	A-CT-CCCT	CCT-GGGCGT ACTT---TCCT A-G-G
CAR4/1205	4i		---C-C	GG-CCAC	CCTACGTGCT GCTTT--TCCT A-GG
CAR4/901	4?	A	-----T	TG-TCCCT	CCT-GGGCGT GCTT---TC- A-G-
BE95	5a		---C-AC	G-AG-CC	AGCTT-GG-GCAT A-G-T-CT ---GA
BE100	5a		---C-C	G-AG-CC	AGCTT-GG-GCAT A-G-T-CT ---GA
SA4	5a		---C-T	G-AG-CC	AG-CT-GG-GCGT A-G-T-CT ---GA
AL-3-4	5a	AL	CT	AG	CCCTTG GCACT A G T CT GA
AL-3-8	5a	AL	CT	AG	CCCTTG GCACT A G T CT GA
PL-4-1	5a	AL	CT	AG	CCCTTG GCACT A G T CT GA
PL-4-6	5a	AL	CT	AG	CCCTTG GCACT A G T CT GA
PL-CE1	5a	AL	CT	AG	CCCTTG GCACT A G T CT GA

Figure 4 - Continued 18

		829	Y40	170	16	Y70	878
HCV-1	1a	GTGGGGGACCTATGCGGGTCTGTCTTCTTGTGGGCCAACTGTTCACTT					
HCVBC1	1a	-----G-----C-----T-----T-----					
HCVHCT18	1a	-----T-----G-----C-----T-----					
HCVHCT23	1a	-----T-----CA-----T-----T-----					
HCVHCT27	1a	-----T-----G-----T-----T-----					
HCVTH	1a	-----G-----CA-----T-----T-----					
HCV-J	1b	-----T-----T-----C-----A-----C-----T-----C-----TC-----G-----					
HC-J6	2a	-----C-----TGGG-----GA-----G-----CA-----C-----GA-----TTG-----					
HC-J8	2b	-----A-----T-----G-----C-----GA-----GA-----C-----ATC3-----GGCT-----TGG-----					
S83	2c	-----G-----G-----T-----CG-----GC-----GA-----G-----G-----C-----CT-----GG-----CG-----GT-----G-----					
NE92	2d	A-A-A-----G-----T-----CG-----G-----GA-----GT-----G-----CTTCT-----G-----C-----T-A-----					
HD10	3a	-----T-----T-----G-----T-----G-----C-----C-----C-----G-----A-----GCC-----G-----					
BR33	3a	-----T-----T-----G-----T-----G-----C-----C-----C-----G-----A-----GCC-----G-----					
BR26	3a	-----T-----T-----G-----T-----G-----C-----C-----C-----G-----A-----GCC-----G-----					
NZL15	3a	-----T-----T-----G-----T-----G-----C-----C-----C-----G-----A-----GCC-----G-----					
HCV-TR	3b	-----C-----CCT-----T-----G-----G-----G-----G-----A-----GC-----					

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Figure 4 - Continued 19

		829	Y40	170	16	Y70	878
GB809_4	4a	-----T-----A-----T-----T-----AGG-----CT-----C-----A-----G-----G-----GA-----					
Z4	4a	-----T-----T-----T-----T-----AGG-----C-----C-----GA-----G-----G-----GA-----A-----T-----					
Z1	4b	A-T-A-T-----G-----T-----AGGC-----C-----A-----G-----G-----GA-----					
GB116	4c	A-C-----T-----T-----TGGC-----A-----T-----G-----T-----T-----GA-----TT-----T-----					
GB215	4c	A-T-----T-----T-----TGGC-----A-----CT-----G-----T-----T-----GA-----TT-----T-----					
GB358	4c	A-C-A-----T-----T-----TGGC-----A-----T-----G-----T-----T-----GA-----TT-----T-----					
Z6	4c	-----T-----A-----T-----T-----TGG-----CA-----CT-----G-----T-----GA-----T-----					
Z7	4c	A-T-----T-----T-----TGGC-----A-----T-----G-----T-----T-----GA-----TT-----T-----					
DK13	4d	A-C-A-----T-----T-----GG-----G-----CT-----G-----T-----T-----GA-----TT-----T-----					
GB809_2	4e	-----C-----C-----T-----TGGCT-----A-----CT-----G-----A-----A-----					
CAM600	4e	A-C-U-----T-----T-----TGGCT-----A-----CT-----G-----G-----A-----					
G22	4f	-----T-----T-----T-----GGCA-----A-----C-----A-----CG-----GA-----					
G27	4f	A-T-A-T-----T-----T-----AGGCA-----A-----A-----G-----GA-----A-----					
GB549	4g	A-C-A-----T-----T-----AGG-----C-----G-----G-----GA-----					
GB438	4h	A-C-A-----T-----T-----AGG-----CT-----G-----CA-----G-----GA-----G-----GT-----					
CAR4/1205	4i	A-T-A-T-----T-----T-----GG-----G-----T-----G-----CG-----TA-----					
CAR4/901	4j	-----C-----A-----T-----AGG-----C-----A-----G-----A-----GA-----					
BE95	5a	-----A-----A-----CG-----T-----G-----AC-----A-----CT-----G-----A-----A-----					
BE100	5a	-----T-----A-----CG-----T-----G-----AC-----A-----T-----G-----A-----A-----					
SA4	5a	-----C-----C-----CG-----T-----G-----A-----G-----T-----G-----A-----A-----					
PC-3.4	5a	A A T T G A C A C T G A A					
PC-3.8	5a	A A T T G A C A C T G A A					
PC-4.1	5a	A A T T G A C A C T G A A					
PC-4.6	5a	A A T T G A C A C T G A A					
PC-CE1	5a	A A T T G A C A C T G A A					

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Figure 4 - Continued 20

		879	890	900	910	920	928
HCV-1	1a	CTCTCCACAGG	CCCACTGGACG	CAAGGTTGCA	ATTGCTTATCTATC		
HCV-1	1a	-----	-----	-----	-----	-----	-----
HCVHCT18	1a	-----	-----	-----	-----	-----	-----
HCVHCT23	1a	-----	-----	-----	-----	-----	-----
HCVHCT27	1a	-----	-----	-----	-----	-----	-----
HCVTH	1a	-----	-----	-----	-----	-----	-----
HCV-J	1b	-----	-----	-----	-----	-----	-----
HC-J6	2a	-----	-----	-----	-----	-----	-----
HC-J8	2b	-----	-----	-----	-----	-----	-----
S83	2c	-----	-----	-----	-----	-----	-----
NE92	2d	-----	-----	-----	-----	-----	-----
HD10	3a	-----	-----	-----	-----	-----	-----
BR33	3a	-----	-----	-----	-----	-----	-----
BR36	3a	-----	-----	-----	-----	-----	-----
NZL15	3a	-----	-----	-----	-----	-----	-----
HCV-TR	3b	-----	-----	-----	-----	-----	-----

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FIG. 4A(111)

Figure 4 - Continued 21

		879					920
GB809_4	4a	-CAC--GC-T	-----	-C--G-A--T	-----	-C--A	
Z4	4a	TCGG--GC-T	-----	-C--G-AG--T	-----	-C--CA	
Z1	4b	-CGA--GC-C	-G--	-C--C-G-A--	-----	-C--	
GB116	4c	-CAG--GC-A	-----	-C--G-AC--T	-----	-CG	
GB215	4c	-CGG--AC-A	-----	-T--G-AC--T	-----	-CG	
GB358	4c	-CAG--GC-A	-----	-T--G-AC--T	-----	-CG	
Z6	4c	-CAG--GC-A	-----	-T--G-AC--T	-----	-CG	
Z7	4c	-CAG--GC-A	-----	-T--G-AC--T	-----	-G	
DK13	4d	-CAA--TC-C	-----	-C--C--AC--T	-----	-CA	
GB809_2	4e	-CAA--GC-A	-----	-C--G-AC--T	-----	-CG	
CAM600	4e	-CAA--GC-A	-T--	-C--T-G-AC--	-----	-CA	
G22	4f	-CGG--C-C-T	-T--	-C--C-G-AG--T	-----	-C	
G27	4f	-AGG--C-C-TG	-----	-C--C-G-AG--T	-----	-C	
GB549	4g	-CGG--GC-C	-T--	-T--C-G-AC--C	-----	-G	
GB438	4h	-CAA--C-C-T	-T--	-T--C-G-A--C	-----	-T-C	
CAR4/1205	4i	-CGG--AC-C	-T--	-T--G-AC--C	-----	-CT	
CAR4/901	4j	-CAG--CC-C	-----	-C--T-G-AC--C	-----	-CT-CG	
BE95	5a	TAGG--TC-C	-AG--	-GT--GAAC--C	-----	-T-CA	
BE100	5a	TAGG--TC-C	-AG--	-GT--G-AC--C	-----	-T-CA	
SA4	5a	TAGG--TC-C	-AG--	-GT--AC--C	-----	-T-CA	
PL-3-4	5a	TAGG	TC C AG	GT	GAAC	C T C T CA	
PL-3-8	5a	TAGG	TC C AG	GT	GAAC	C T C T CA	
PL-4-1	5a	TAGG	TC C AG	GT	GAAC	C T C T CA	
PL-4-6	5a	TAGG	TC C AG	GT	GAAC	C T C T CA	
PL-C/E1	5a	TAGG	TC C AG	GT	GAAC	C T C T CA	

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FIG. 4A(111)

Figure 4 - Continued 22

		929	940	950	957
HCV-1	1a	CCGGCCATATAACGGGTCACCGCATGGCA			
HCVHCT18	1a	-----C-----G-----			
HCVHCT23	1a	-----C-----G-----			
HCVHCT27	1a	-----A-----			
HCVTH	1a	-----C-----G-----			
HCV-J	1b	CG-T-A-----T			
HC-J6	2a	-T--TACC-C--T--A-----G			
HC-J8	2b	AA--T--C-C--C--C--T-----			
S83	2c	-G--GC-T--A-----T			
NE92	2d	-A-----C-C-T-A--T--G--G			
HD10	3a	-A-----C-TT-A--A-----T			
BR33	3a	-A-----C-TT-A--A--T--A--T			
BR36	2a	-A-----C-TT-A--A--T--A--T			
N2L15	3a	-A-----C-TT-A--A--T--A--T			
HCV-TR	3b	-A-----C-TT-A--A--T--T--G			

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Figure 4 - Continued 23

		929	940	950	957
GB809_4	4a	-T-----C-C-C--A--G-----G			
Z4	4a	-T-----C-C-C--A--G-----G			
Z1	4b	-T-T--C--CT--C--A--G--C			
GB116	4c	-G-G--C--T--C--A--G-----			
GB215	4c	-G-G--C--C-T-C--G--A-----			
GB358	4c	-G-G--C--T--C--A--G-----			
Z6	4c	-A-G--C--C--C--A--G-----			
Z7	4c	-G-G--C--T--A--A--A-----			
DK13	4d	-A-A--C--A--A--A--A-----T			
GB809_2	4e	-A-G--T--C--T--G-----T			
CAM600	4e	-G--C--T--T--G-----			
G22	4f	-G--C--C--TA--A--G-----			
G27	4f	-A--C--C--A--A--G-----			
GB549	4g	AT--C--C--C--TA--A--T-----			
GB438	4h	TG--C--C--C--A--G-----C			
CAR4/1205	4i	-A-G--C--C-----			
CAR4/901	4j	T--C--C--A--C--A--A-----T			
BE95	5a	GT-----G-T-C-C--G-----G			
BE100	5a	GT-----G-C-C-C--T--G-----			
SA4	5a	GT-----C-C-C--G-----			
PC-3-4	5a	GT	G T C C	G	
PC-3-8	5a	GT	G T C C	G	
PC-4-1	5a	GT	G T C C	G	
PC-4-6	5a	GT	G T C C	G	
PC-CIE1	5a	GT	G T C C	G	

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Withdrawal of the Section 112, first paragraph, rejection of the claims stated on pages 2-5 of the Office Action dated September 23, 2005, is requested.

The Section 112, first paragraph "written description", rejection of claims 24-57 stated on page 4 of the Office Action of September 23, 2005, is submitted to be obviated by the above amendments. Reconsideration and withdrawal of the rejection are requested as the claims do not require hybridization, as suggested by the Examiner's reference to "desired properties" as a basis of the rejection. Entry of the above amendments and withdrawal of the rejection are requested.


The present Amendment is submitted to place the application in condition for allowance without raising new issues requiring further search and/or consideration. No new matter has been added. Entry of the present Amendment and allowance of the application are requested.

The Examiner is requested to contact the undersigned in the event anything further is required.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____


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